

before, resembles nothing so much as the spine of a Mammalian scapula. It is a V-shaped bone, placed exteriorly on the perpendicular side of the scapula, to which it is attached for nearly 4 inches, widening from nothing in front to $1\frac{5}{8}$ inch where the attachment ends behind. The exterior border is produced backward till the bone is $6\frac{1}{2}$ inches long; but the inner border contracts in a curve so as to produce a free spine $2\frac{5}{8}$ inches long, which overhangs the glenoid cavity.

The clavicle holds the same relative position that it has in *Ichthyosaurus*.

My thanks are due to Mr. W. Farran for the interest taken in producing the beautiful photographs from which the plates are taken.

EXPLANATION OF PLATES.

PLATE XIV.

P. cleutheraxon (Seeley): α , ilium; β , scapula; α' , distal end of left ilium; γ , analogue of lesser trochanter on the under side of left femur; δ , great trochanter, on the upper side of left humerus; ϵ , large hæmapophysial pit of first caudal vertebra; I. cervical and pectoral vertebræ; II. dorsal vertebræ; III. pelvic; IV. caudal.

PLATE XV.

P. cliduchus (Seeley): α , episternum; β , coracoid; γ , scapula; δ , clavicle; ϵ , pectoral foramen; ζ , glenoid cavity for humerus; I. last three cervical vertebræ; II. pectoral vertebræ; III. dorsal.

BIBLIOGRAPHICAL NOTICES.

A History of British Ferns. By EDW. NEWMAN. The Fourth or School Edition. London: Van Voorst.

This does not pretend to be a scientific work, and, in that respect as well as many others, differs from the author's former books upon Ferns; but why it is called a "school edition" we cannot understand. A work for schools ought to possess something of an educational character; but the total omission of scientific arrangement is not the most fitting mode of teaching. We should rather say that this book is intended for the purely unscientific collector and cultivator of these beautiful and now popular plants. Even for such a purpose we much doubt if it is desirable to neglect the chance of conveying some knowledge of science, and transforming the mere collector into something, however little, of a botanist. Doubtless many who commence as collectors do really in time learn to desire some scientific knowledge of the objects in which they take an interest; and therefore the book placed in their hands should give the information that they at first require.

Mr. Newman brings forward the difference of opinion that exists amongst botanists upon the division of Ferns into genera as a suffi-

cient reason for neglecting all generic names and characters. This may be convenient for the mere collector, but effectually excludes him from the knowledge of the structure of the fructification acquired by the study of the generic characters as given by any one of the botanists to whom he refers. Because A. Gray, Roth, Babington, and Hooker have been led to call the "same group of species" by different names is no reason for not pointing out the characteristics of the group, about which we believe that these authors do not materially differ.

It may be that the genera as at present accepted are to some extent artificial,—that is, if British Ferns are alone considered; but are they quite so artificial if all Ferns are taken into account? And as they are founded upon structure, is it not better, in a "school edition," that even they, as the best that our present knowledge supplies, should be placed before the reader? We certainly think so; for there is much education for the observing faculties in determining these genera from a study of structure. The effect of neglecting the generic names has caused only the specific terms to be used in this book—a step, as it seems to us, in the wrong direction. Mr. Newman says that "authors plume themselves on the number and length of the Latin appellations they bestow on each species: no less than 86 Latin names have been assigned to *felix-fœmina* and its varieties, and 47 to *Scolopendrium* and its varieties." We think that this is rather misrepresenting the matter. No botanist does so, although gardeners do give useless names to an infinite number of forms. What botanist cares for the 47 forms of *Scolopendrium*? If we look at the books published by the above-named authors, we shall probably find not a single one of these ever-varying forms noticed by name, but only the collective species characterized. Under the *felix-fœmina* some two or three of the more marked and constant forms are usually distinguished. These botanists certainly do not "plume themselves" on the length or number of the names given to the plants.

The author takes credit to himself for going back to the very oldest names in all cases—a very good thing, doubtless, if done with judgment; but where is the advantage of hunting-up some obsolete name when all the best botanists have agreed to accept one uniform nomenclature? Why should we add to the confusion caused by synonymy, by using *Polypodium myrrhidifolium* (Villars) for the *Cystopteris montana* (Link), even if Villars really meant that plant by that name? And why defend it by finding and using another obsolete name, *Polypodium montanum* (Vogl), for the *Polypodium* (or *Aspidium* or *Lastrea*) *Oreopteris* of all the best botanical authorities of all countries? He says that as "the principle of restoring prior names is now universal in zoology, I can only regret it is so frequently disregarded in the sister science." We thought that zoologists were very generally protesting against the attempt to change the recognized names for the uncertain and ill-defined ones of old authors. They think, and with much reason, that we are only confusing the nomenclature, and unnecessarily adding to the

difficulties of science, by so doing. We believed that it was generally allowed that the nomenclature of botany was in a better state than that of zoology. Many changes have been made recently; but they have been rendered necessary by an endeavour to bring the nomenclature of different countries into harmony, not by an attempt to rake up and use obsolete terms which may be detected by a careful search into ancient or obscure writers. Hooker has not acted in the latter way, neither has Fries or any of the great authorities on botanical nomenclature.

But enough of this. Under each species the author has given a fairly good popular description of the plant, and some useful hints concerning its best mode of cultivation, and also, occasionally, other remarks of more or less interest. The *Cystopteris dentata* is apparently combined with the *C. fragilis* (we say, apparently, for the name is not mentioned); but the *C. Dickieana* is kept distinct. It does not seem to us to be more constant or more distinct than several of the 86 forms of *Athyrium filix-fœmina*. The difference stated to exist in their spores, however, is undoubtedly a point in Mr. Newman's favour. *Recurvum* is retained as the specific name of the *Lastrea æmula* or *fœnisecii* of authors. If the oldest name is adopted, it should be *æmula*, which is much older than Lowe's *fœnisecii* or Newman's *recurva*. We do not find that Bree ever called the *species* by that name; and even if he had done so, the 'Hortus Kewensis' is of much earlier date. In this case no name has been universally adopted, and we are therefore fully justified in reverting to the oldest. *Multiflorum* and *spinulosum* are still retained for the *L. dilatata* and *L. spinulosa* of nearly all other authors. Mr. Newman's own *glandulosum* is kept distinct. He also separates *uliginosum* from the *Aspidium cristatum* of Smith. *A. remotum* is likewise retained as a species. Mr. Newman considers the *Aspidium* (or *Polypodium*) *alpestre* "very closely allied to the common Lady Fern." Superficially considered, it seems so; but we think that they are far from being closely allied in reality. *Asplenium acutum* is separated from *A. adiantum-nigrum*. We give no opinion upon this, although inclined to consider them forms of one species. *Asplenium Petrarchæ* is stated to be a real native of Ireland. We hope that it may prove to be so. Mr. Newman adheres to the name of *Hymenophyllum unilaterale* for the *H. Wilsoni*, although, if we mistake not, it has been shown that they are not the same plant. *Ophioglossum lusitanicum* is said to grow near the Land's End in Cornwall. Is it not the *O. vulgatum* β . *ambiguum* which is found there, as it certainly is in the Scilly Isles?

Mr. Newman takes credit to himself for having done much towards causing the present popularity of Ferns. It may be a questionable point if he has done good or harm thereby. The result is that all our most interesting Ferns are being uselessly extirpated in all tolerably accessible places,—uselessly; for a very small number of those pulled up are ever kept alive, or preserved as specimens, or studied botanically. Those who visit Wales after some few years of interval cannot fail to notice and deplore the result. The plants which they

used to look at, not gather, on the mountains are hopelessly eradicated; and they have to go to spots more fitted for the Alpine Club than the botanist, to see the rarer or more interesting species. Happily there are a few such spots to which no "tourist" is likely to attain, where our rare Ferns may perhaps be preserved for the gratification of a future generation, and from which, when the present fashion has passed away, they may spread to more accessible places on the hills.

Chart of Fossil Crustacea. By J. W. SALTER and H. WOODWARD.
With Descriptive Catalogue. Lowry & Tennant: London, 1865.

This is a large chart (2 feet 2 inches by 2 feet 9 inches) of the genera of fossil Crustacea, showing the range in time of the several orders, together with some recent Crustacean types analogous to the extinct forms. The Chart is divided transversely into fifteen zones of varying thickness, alternately dark and light, and corresponding to geological stages; and vertically, across these bands, are represented eight streams, varying in width and length, of Crustacean forms,—some (as the Trilobites and Eurypterids) beginning early and dying out in palæozoic times, others (as the Decapods, Tetradeapods, and Xiphosures) beginning either in the Devonian or the Carboniferous period and still flourishing; whilst the Brachyurous Decapods are first found in the Jurassic rocks. Among the lower groups of Crustacea, the little Bivalved Entomostraca seem to have had representatives for almost as long as fossiliferous strata take us back in time; for their "stream of history" ranges upwards from the chart's lowest band ("Cambrian" or "Lingula-flags"). The Cirripeds also are included in this conspectus of Crustacean life; and the Catalogue explains that though in the Chart they range only from the Rhætic strata upwards, yet good specimens of a trustworthy representative (*Turrilepas*) have of late been recognized by Mr. H. Woodward among Upper Silurian fossils; and woodcut figures are given at page 26.

The Chart fully answers the purpose proposed—supplying the carcinologist with an eye-sketch of the Crustacean types and subtypes, and enabling the palæontologist to see the coexistent forms at any epoch, and to trace at a glance the range of each group, whether occupying the stage at once in force, as in the case of the Trilobites and Eurypterids, or beginning with obscure traces or uncertain forms, and whether giving place to incoming allies or continuing in true succession to the present day. We need not wonder that the Chart is good, well-devised, and conscientiously worked out; for Mr. Salter is devoted to Trilobites, Palæocarids, *et hoc genus omne*, whilst Mr. H. Woodward is as fond as anybody of Crabs and Lobsters, Prawns, Shrimps, and "such small deer," not only in the fresh but in the fossil state; both also have made a study of the Eurypterids, and both have command of the goodwill and help of their brother palæontologists; while Mr. Lowry, the engraver, has long been known for the successful application of his art to geology and fossils, prompted by a genuine love of the science in all its branches.